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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/804,413

03/19/2004

Robert R. Atkinson

ITL.1111US (P18783)

7288

21906

7590

03/17/2006

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EXAMINER

HOFFBERG, ROBERT JOSEPH

ART UNIT

PAPER NUMBER

2835

DATE MAILED: 03/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/804,413	ATKINSON, ROBERT R.	
	Examiner	Art Unit	
	Robert J. Hoffberg	2835	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 February 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,5-11,15-21 and 23-37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,5-11,15-21,23 and 25-37 is/are rejected.
- 7) ☒ Claim(s) 24 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 March 2004 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Detailed Action

Claim Objections

Claim 15 objected to because of the following informalities: "a printed circuit board" should be the or said printed circuit board because element of printed circuit board is previously recited in claim 11. Appropriate correction is required.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 1, 5-6, 11, 15-16, 21, 25, 27-28 and 31-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin et al. (US 6,307,748), in view of Liu (US 2004/0052611).

With respect to Claim 1, Lin et al. teaches a method comprising: releasably plugging (Col. 4, lines 10+) a heat sink assembly (Fig. 1, #80) into a printed circuit board (Fig. 1, #100); plugging an upper portion (Fig. 1, #40) into a lower portion (Fig. 1, #60), said upper portion coupled to said heat sink and said lower portion coupled to a printed circuit board; telescopically plugging (Fig. 5 and 6) said upper portion into said lower portions; and releasably (between Fig. 9, #68 and #72) plug locking said lower portion in said printed circuit board. Lin et al. fails to teach that the lower portion plug locks into the printed circuit upon its insertion. Liu teaches plug locking (Fig. 4, #16) said lower portion (Fig. 4, #11) in said printed circuit board (Fig. 6,

#51) upon insertion (Para. 0024, line 6) of said lower portion in said board. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the method of Lin et al. with that of Liu for the purpose of providing an independent means to lock the lower portion to the circuit board to prevent the lower portion from being removed when removing the heat sink assembly from the circuit board.

With respect to Claim 5 and 15, Lin et al. further teaches a method including plugging said lower portion into a hole (Fig. 1, #102) in said printed circuit board.

With respect to Claim 6, Lin et al. further teaches a method including engaging a catch (Fig. 8, #48 on bottom of #60) on said lower portion with a spring (Fig. 1, #50) biased rod (Fig. 1, #44) in said upper portion.

With respect to Claim 11, Lin et al. teaches a method comprising: arranging a heat sink assembly (Fig. 1, #80) to releasably plug (Col. 4, lines 10+) into a printed circuit board (Fig. 1, #100); plugging an upper portion (Fig. 1, #40) of said assembly into a lower portion (Fig. 1, #60) of said assembly, said upper portion connectable to a heat sink and said lower portion connectable to a printed circuit board; enabling said upper and lower portions to telescopically plug (Fig. 5 and 6) into one another; and enabling said lower portion to releasably (between Fig. 9, #68 and #72) plug lock in a printed circuit board. Lin et al. fails to teach that the lower portion plug locks into the printed circuit upon its insertion. Liu teaches plug locking (Fig. 4, #16) said lower portion (Fig. 4, #11) in said printed circuit board (Fig. 6, #51) upon insertion (Para. 0024, line 6) of said lower portion in said board. It would have been obvious to one of ordinary skill in

the art at the time of the invention was made to modify the method of Lin et al. with that of Liu for the purpose of providing an independent means to lock the lower portion to the circuit board to prevent the lower portion from being removed when removing the heat sink assembly from the circuit board.

With respect to Claim 16, Lin et al. further teaches a method including enabling a spring (Fig. 1, #50) biased rod (Fig. 1, #44) in said upper portion (Fig. 1, #40) to engage a catch (Fig. 8, #48 on bottom of #60) on said lower portion (Fig. 1, #60).

With respect to Claim 21, Lin et al. teaches a heat sink assembly comprising: a telescoping (Fig. 5 and 6) first portion (Fig. 1, #40) to engage a printed circuit board (Fig. 1, #100); a telescoping (Fig. 5 and 6) second portion (Fig. 1, #60) to engage a heat sink (Fig. 1, #80) to be attached to said printed circuit board; said first portion and said second portion releasably (Col. 4, lines 10+) locking together when said first portion is plugged into said second portion; and wherein said first portion (Fig. 1, #40) includes a cammed member (Fig. 3, #723) that deflect inwardly into said first portion when said first portion engages a printed circuit board (Fig. 1, #100) and snap outwardly after said first portion is plugged into said printed circuit board. Lin et al. fails to teach that the lower portion plug locks into the printed circuit upon its insertion. Liu teaches releasably (Fig. 4, #16) holding said first portion (Fig. 4, #11) in said printed circuit board (Fig. 6, #51). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the method of Lin et al. with that of Liu for the purpose of providing an independent means to lock the lower portion to the circuit board to prevent

the lower portion from being removed when removing the heat sink assembly from the circuit board.

With respect to Claim 25, Lin et al. further teaches an assembly wherein said second portion (includes a tubular (having a round cylindrical shape) member (Fig. 1, #60) that slides within said first portion.

With respect to Claim 27, Lin et al. further teaches an assembly including a rod (Fig. 1, #44) reciprocable within said tubular member, said rod having opposed ends, one of said ends (Fig. 1, #48) to engage the catches (Fig. 8, bottom of #60) in said first portion.

With respect to Claim 28, Lin et al. further teaches an assembly wherein said rod is spring (Fig. 1, #50) biased.

With respect to Claim 31, Lin et al. further teaches an assembly including a heat sink (Fig. 1, #80) secured to said second portion.

With respect to Claim 32, Lin et al. further teaches an assembly including a printed circuit board (Fig. 1, #100) secured (see Fig. 9) to said first portion.

3. Claim 7-10, 17-20 and 29-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin et al. (US 6,307,748) in view of Liu (US 2004/0052611) as applied to the above claims, and further in view of Coules (US 4,007,516).

With respect to Claim 7, Lin et al. in view of Liu teach the method of claim 6, above. They do not teach releasing the catch by rotating the rod. Coules teaches releasing the catch (Col. 2, lines 54-58) by rotating the rod (Fig. 5, #36). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to

modify the method of Lin et al. in view of Liu with that of Coules for the purpose of providing a quick means of releasing the catch.

With respect to Claim 8, Lin et al. in view of Liu fail to teach including a means to prevent rotation of the rod. Coules further teaches the method including preventing rotation (Fig. 3, #15) of said rod (Fig. 6, #36). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the method of Lin et al. in view of Liu with that of Coules for the purpose of preventing unintentional disassembly of the fasteners.

With respect to Claim 9, Lin et al. in view of Liu fail to teach a means to prevent rotation including a flanged rod end on the rod. Coules further teaches the method wherein preventing rotation (Fig. 3, #15) (based upon the slot in the catch preventing rotation) includes using a flanged end (Fig. 1, #14) on said rod (Fig. 6, #36) which engages a releasable (Col. 2, line 54) lock. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the method of Lin et al. in view of Liu with that of Coules for the purpose of using a combination of elements to prevent rotation of the rod and lock the rod in a fixed position.

With respect to Claim 10, Lin et al. in view of Liu fail to teach using an extended end of the rod. Coules further teaches the method including using an extending end (Fig. 1, #31) opposite said flanged end (Fig. 1, #14) said rod (Fig. 6, #36) to engage (Col. 2, line 29) said catch and to be released (Col. 2, lines 54-56) from said catch when said rod is rotated. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the method of Lin et al. in view of Liu with that

of Coules for the purpose of providing an extension that permits the heat sink to mounted above the lower portion and the circuit board.

With respect to Claim 17, Lin et al. in view of Liu teach the method of claim 16, above. They do not teach enabling said catch to be released by rotating the rod. Coules teaches the enabling said catch (Col. 2, lines 54-58) to be released by rotating said rod (Fig. 5, #36). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the method of Lin et al. in view of Liu with that of Coules for the purpose of providing a quick means of releasing the catch.

With respect to Claim 18, Lin et al. in view of Liu fails to teach providing a way to prevent rotation of the rod. Coules further teaches the method including providing a way to prevent rotation (Fig. 3, #15) of said rod (Fig. 6, #36). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the method of Lin et al. in view of Liu with that of Coules for the purpose of preventing unintentional disassembly of the fasteners.

With respect to Claim 19, Lin et al. in view of Liu fails to teach providing a flanged end on the rod. Coules further teaches the method including providing a flanged end (Fig. 1, #14) on said rod (Fig. 6, #36) to engage a releasable (Col. 2, line 54) lock to prevent rotation (Fig. 3, #15) (based upon the slot in the catch preventing rotation) of said rod. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the method of Lin et al. in view of Liu with that of Coules for the purpose of using a combination of elements to prevent rotation of the rod and lock the rod in a fixed position.

With respect to Claim 20, Lin et al. in view of Liu fails to teach an extending end on the rod. Coules further teaches the method including providing an extending end (Fig. 1, #31) on said rod (Fig. 6, #36) opposite said flanged end (Fig. 1, #14) of said rod to engage (Col. 2, line 29) said catch and to be released (Col. 2, lines 54-56) from said catch when said rod is rotated. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the method of Lin et al. in view of Liu with that of Coules for the purpose of providing an extension that permits the heat sink to mounted above the lower portion and the circuit board.

With respect to Claim 29, Lin et al. in view of Liu teach the method of the above claims. They do not teach the free end of said rod to releasably engage said catches and to be releasable upon rotation of said rod. Coules teaches the free end (Fig. 6, #36 near #39) of said rod (Fig. 6, #36) to releasably (Col. 2, line 54) engage said catches (Fig. 6, #39) and to be releasable upon rotation (Col. 2, line 56) of said rod. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the method of Lin et al. in view of Liu with that of Coules for the purpose of providing a feature to prevent disengagement of the rod.

With respect to Claim 30, Lin et al. in view of Liu fail to teach that the upper surface of the tubular member of the second portion includes a locking member. Coules further teaches the upper surface of said tubular member of said first portion includes a locking member (Fig. 3, #15) to prevent rotation of said rod to release said free end of said rod from said catch in said first portion. While Coules shows the reversal of the first and second portions as to which portion includes the locking

member, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the assembly of Lin et al. in view of Liu with that of Coules that addition of a locking member on either portion would prevent rotation and disengagement of the rod and to reverse the first and second portions. It has been held that reversal of the essential working parts involves only routine skill in the art. *In re Gazda*, 219 F.2d 449, 104 USPQ 400 (CCPA 1955).

4. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lin et al. (US 6,307,748) in view of Liu (US 2004/0052611) as applied to claim 21 above, in view of Lin et al. (US 6,412,546).

With respect to Claim 23, Lin et al. ('748) in view of Liu teaches the assembly of claim 21, above. Lin et al. does not teach the feature that said first portion includes a pair of opposed L-shaped catch members. Lin et al. ('546) teaches the assembly wherein said first portion (Fig. 2, #50) includes a pair of opposed L-shaped catch members (Fig. 3, between #624 and #628). Lin et al. ('546) teaches that the first portion slides into L-shaped catch members within the second portion. While Lin et al. ('546) shows the reversal of the first and second portion members as to which member includes a pair of opposed L-shaped catch members, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the assembly of Lin et al. ('748) in view of Liu with the feature of Lin et al. ('546) to providing L-shaped catch members on either portion to retain the flanged pin after it is snapped into place. It has been held that reversal of the essential working parts involves only routine skill in the art. *In re Gazda*, 219 F.2d 449, 104 USPQ 400 (CCPA 1955).

5. Claim 26 and 33-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin et al. (US 6,307,748) in view of Liu (US 2004/0052611) and further in view of Ulen et al. (US 2005/0117305).

With respect to Claim 26, Lin et al. in view of Liu teaches the assembly of the above claims. They fail to teach the second portion is threadly secured to a heat sink. Ulen et al. teaches that said tubular member (see Fig. 2) includes threads (Para. 0014, lines 6-8) to threadedly secure said second portion (Fig. 2, #40) to a heat sink (Fig. 2, #25). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the method of Lin et al. in view of Liu with that of Ulen et al. to attach the second portion to the heat sink to preclude the attachment hardware from being separated from the heat sink.

With respect to Claim 33, Lin et al. teaches a heat sink assembly comprising: a telescoping (Fig. 5 and 6) first portion (Fig. 1, #40) to engage a printed circuit board (Fig. 1, #100); a telescoping (Fig. 5 and 6) second portion (Fig. 1, #60) to engage a heat sink (Fig. 1, #80) to be attached to said printed circuit board; said first portion and said second portion releasably (Col. 4, lines 10+) locking together when said first portion is plugged into said second portion; and wherein said first portion (Fig. 1, #40) includes a cammed member (Fig. 3, #723) that deflect inwardly into said first portion when said first portion engages a printed circuit board (Fig. 1, #100) and snap outwardly after said first portion is plugged into said printed circuit board. Lin et al. fails to teach that the lower portion plug locks into the printed circuit upon its insertion and the second portion is threadly secured to a heat sink. Liu teaches releasably (Fig. 4, #16) holding said first

portion (Fig. 4, #11) in said printed circuit board (Fig. 6, #51). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the method of Lin et al. with that of Liu for the purpose of providing an independent means to lock the lower portion to the circuit board to prevent the lower portion from being removed when removing the heat sink assembly from the circuit board. Ulen et al. teaches that said tubular member (see Fig. 2) includes threads (Para. 0014, lines 6-8) to threadedly secure said second portion (Fig. 2, #40) to a heat sink (Fig. 2, #25). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the method of Lin et al. in view of Liu with that of Ulen et al. to attach the second portion to the heat sink to preclude the attachment hardware from being separated from the heat sink.

With respect to Claim 34, Lin et al. further teaches an assembly including a rod (Fig. 1, #44) reciprocable within said tubular member, said rod having opposed ends, one of said ends (Fig. 1, #48) to engage the catches (Fig. 8, bottom of #60) in said first portion.

With respect to Claim 35, Lin et al. further teaches an assembly wherein said rod is spring (Fig. 1, #50) biased.

6. Claim 36-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin et al. (US 6,307,748) in view of Liu (US 2004/0052611) and further in view of Ulen et al. (US 2005/0117305) as applied to the above claims, and further in view of Coules (US 4,007,516).

With respect to Claim 36, Lin et al. in view of Liu and further in view of Ulen et al. teach the method of the above claims. They do not teach the free end of said rod to releasably engage said catches and to be releasable upon rotation of said rod. Coules teaches the free end (Fig. 6, #36 near #39) of said rod (Fig. 6, #36) to releasably (Col. 2, line 54) engage said catches (Fig. 6, #39) and to be releasable upon rotation (Col. 2, line 56) of said rod. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the method of Lin et al. in view of Liu and further in view of Ulen et al. with that of Coules for the purpose of providing a feature to prevent disengagement of the rod.

With respect to Claim 37, Lin et al. in view of Liu and further in view of Ulen et al. fail to teach that the upper surface of the tubular member of the second portion includes a locking member. Coules further teaches the upper surface of said tubular member of said first portion includes a locking member (Fig. 3, #15) to prevent rotation of said rod to release said free end of said rod from said catch in said first portion. While Coules shows the reversal of the first and second portions as to which portion includes the locking member, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the assembly of Lin et al. in view of Liu with that of Coules that addition of a locking member on either portion would prevent rotation and disengagement of the rod and to reverse the first and second portions. It has been held that reversal of the essential working parts involves only routine skill in the art. *In re Gazda*, 219 F.2d 449, 104 USPQ 400 (CCPA 1955).

Allowable Subject Matter

7. Claim 24 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The following is a statement of reasons for the indication of allowable subject matter: Claim 24 is allowable over the art of record at least in part because the prior art does not teach or suggest that "the first portion, includes a cammed member to engage a printed circuit board, is cylindrical having a closed end and an open end, said open end to receive said second portion, said closed end mounting said pair of opposed L-shaped catches". The closest reference to present invention is believed to be Lin et al. (US 6,412,546). Lin et al ('546) lacks the structure a cup shaped member containing opposed L-shaped catches in the closed end.

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Preziosi (US 3,220,078), Bisbing (US 4,047,266) and Settergren et al. (US 2003/0184948) teach rotary fasteners. Blankenburg (US 4,898,493), Petri (US 4,969,065), Cipolla et al. (US 5,586,005), Chou et al. (US 6,104,614), Lai (US 6,456,490), Chen et al. (US 6,752,577), Haiser (US 6,866,540), Morerke et al. (US 6,874,983) and Aoki et al. (US 6,934,155) teach snap fasteners. Lee et al. (US 6,480,387), Perarson et al. (6,501,658), Lee et al. (US 6,611,431), Robertson (US 6,866,540) and Liu (US 2004/0052611) teach threaded fasteners.

Response to Arguments

9. Applicant's arguments with respect to claims 1-4 and 11-14 have been considered but are moot in view of the new ground(s) of rejection. Original claims 1-4

and 11-14 have been combined into amended claims 1 and 11 with the additional limitation "upon insertion of said lower portion in said board". This additional limitation requires the lower portion to lock into the board upon insertion, whereas the original claims did not require locking upon insertion of lower portion into the board. Lin et al. (US 6,307,748) provided locking of the lower portion into the board when the upper portion is installed into the lower portion.

10. Applicant's arguments regarding claim 21 is persuasive but are moot in view of the new ground(s) of rejection.

11. The indicated allowability of claim 26 is withdrawn in view of the newly discovered reference(s) to Ulen et al. (US 2005/0117305). Rejections based on the newly cited reference(s) above.

12. Amended specification is acceptable.

13. Objection to drawing is withdrawn. Applicant's arguments are persuasive.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert J. Hoffberg whose telephone number is (571) 272-2761. The examiner can normally be reached on 8:30 AM - 4:30 PM Mon - Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynn D. Feild can be reached on (571) 272-2092. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RJH *RJH*

Lynn Feild
LYNN FEILD
SUPERVISORY PATENT EXAMINER